NDIA Conference: Naval Innovation in Challenging Times

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Revolutionary Research . . . Relevant Results

OFFICE OF NAVAL RESEARCH

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The Challenges to Naval Innovation

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- Do More With Less
- Workforce Certification
- Force Multiplier Challenges
- Rapid Prototyping Group
- Ensure Technological Superiority Over Our Adversaries
- Increase Capabilities While Decreasing Costs
- Sailor and Marine Driven Innovations
- Sequestration Cuts to S&T Investment Portfolios
- Balance Acquisition Costs Against Total Ownership Costs
- Crowd Sourcing and Open Innovation
- Be Ahead of the Technology Curve
- Changes to Naval S&T Governance
- Disruptive, Rapid, and Cross-Functional
- New Technology Discovery and Development Through Wargaming
- Internal Naval and External Innovation Collaboration

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Innovative Naval S&T

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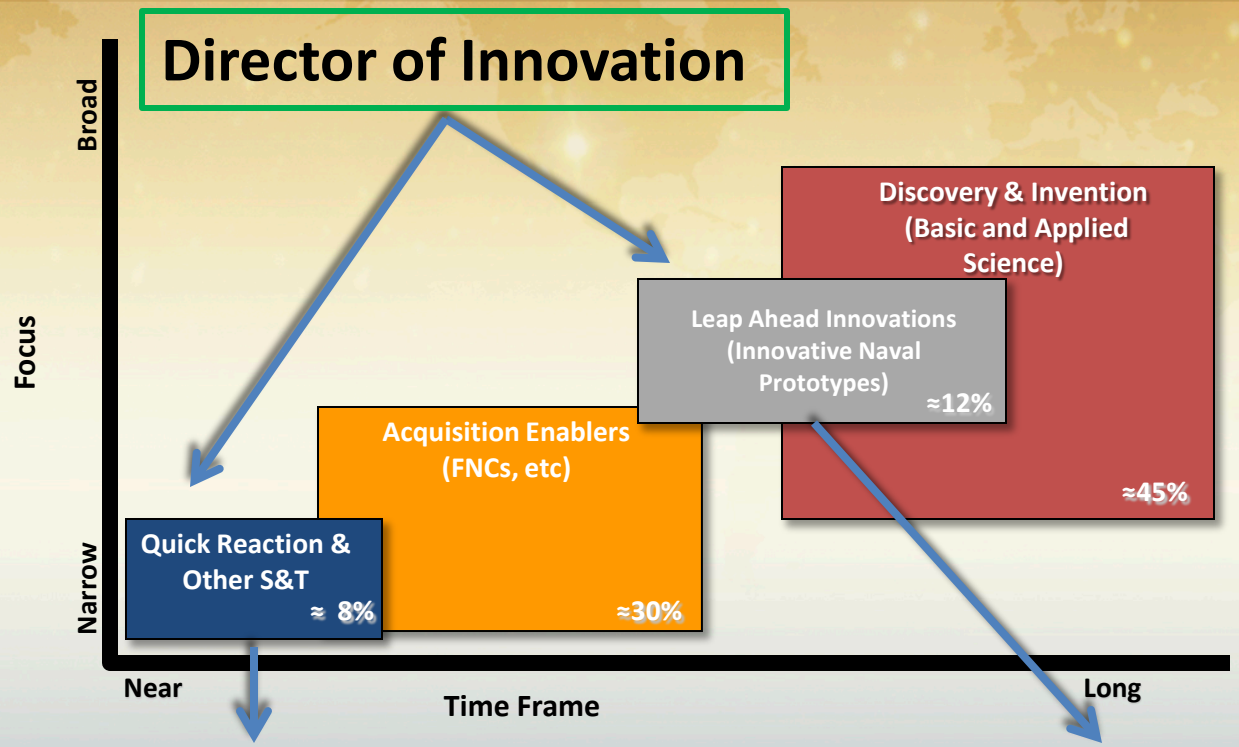

Quick Reaction

Fleet Driven Material Solutions

1-2 yrs

Leap Ahead Innovations

Disruptive Technologies

5-7 yrs

DOI Mission:
promote, foster, and develop innovative sciences, technologies, processes, and policies that support the Department of Navy

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Rapid Prototyping Group (RPG)

"Consolidate all Quick Reaction Programs for the Fleet"
Chief of Naval Operations,
Admiral Greenert
July 2012

- Fast paced technology delivery programs:
  - TechSolutions (TS)
  - SwampWorks (SW)
  - CNO Speed To Fleet (S2F)
  - Technology Transition (TTX)
- Each program has different stakeholders, vetting and approval processes, and funding sources

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Quick Reaction Programs
Moving S&T to Programs of Record

SwampWorks: Sea Robin is a large (10') submarine launched **fuel cell powered UAV** for ISR. It underwent full scale testing last summer, only four years after program start. COMSUBFOR and SOCOM are the likely transition partners.

TIPS: PEO-SUBS is saving **$30M** and **returning three years of lost operational availability** through **an improved installation method for SSN 688 class submarine batteries.** OHIO and VIRGINIA Class submarines have similar battery installations that may leverage lessons from this redesign.

TechSolutions: The **Power Management Kit (PMK)** was delivered in 18 months. **It replaces 50 lbs** of 120V powered unique battery chargers **with a nine lb** compact multi-power source universal battery charging kit with a built-in 60w solar power source. It is now available on GSA.

Speed to Fleet (S2F): **MCM Data Exfiltration** technology will **provide mine-hunting data transmission** from a MK18 UUV back to the warfighters **for near-real-time analysis**. **The initiative will reduce the MCM data cycle time from hours to minutes.**

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Innovative Naval Prototypes (INP)

- **DON RDT&E Corporate Board approves % of ONR TOA dedicated to Leap Ahead: currently ≈12%**
- **Game changing or disruptive**
  - Dramatically changes the way naval forces fight
  - Radical departure from established requirements and concepts of operation
- **Higher risk to produce higher warfighting payoff**
- **Current INPs:**
  - Integrated Topside (InTop)
  - Autonomous Aerial Cargo Utility System (AACUS)
  - Electromagnetic Railgun (EMRG)
  - Large Displacement Unmanned Underwater Vehicle (LDUUV)
  - Free Electron Laser (FEL)
- **FY16 new start INP proposal process**

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mmowgli

massively. multiplayer. online. wargame. leveraging. the internet.

the challenge and the opportunity: an era of **wicked problems**…characterized by complexity and uncertainty; by incomplete, perhaps even contradictory requirements; and by complex, perhaps even hidden, interdependencies.

in this context a single vision, top down approach no longer works; the primary activity in this context is more of a **continuous conversation** rather than the production of a blueprint.

mmowgli is an in-depth approach to this conversational metaphor; it is a re-purpose-able game platform that elicits fresh insight by engaging the wisdom of crowds around serious issues.

with mmowgli we can **reframe our grandest challenges as a grand opportunity** – to tap into our **collective intelligence,** to **engage with our most difficult situations** while **engaging with each other** more deeply and meaningfully.

why this matters: "One thing a person cannot do, no matter how rigorous his analysis, or heroic his imagination, is to draw up a list of things that would never occur to him." ***–Thomas Schelling***

This year we are doing four separate mmowgli re-purposes-ments

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Innovation Beyond Imagination

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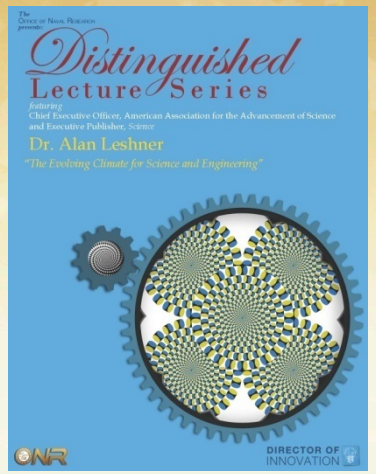
Innovation Newsletter

- Explores technologies and capabilities from first hand Warfighters or S&T professionals
- Themes are relevant and timely
- A unique way to visualize the Navy S&T message
- Always looking for new input and perspectives from NRE family

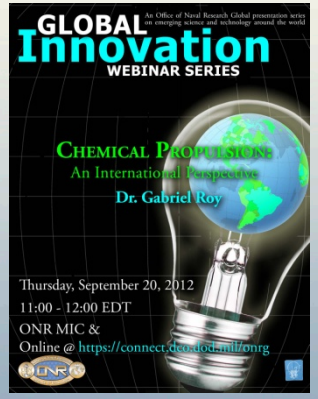


ONR Global Innovation Webinar Series

- Experts from S&T backgrounds discuss innovation with an international perspective
- Providing insights on trends and issues relating to emerging S&T around the world
- Seeking to improve our international presence through S&T relationships
- Webinar platform allows interactive discussion

Distinguished Lecture Series

- Promoting collaboration and highlighting frontier science and thought
- Enhancing communication across disciplines and organizational boundaries
- Gaining insight into the present and future areas of S&T that are in technological demand



Promoting Collaboration and Interaction within the S&T Community

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Questions you might want to ask:

- Who does industry talk to about Innovation? How do you engage?
- How does industry participate in the INP or other Director of Innovation programs?
- How do we measure success?
- What are the impacts of sequestration?

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